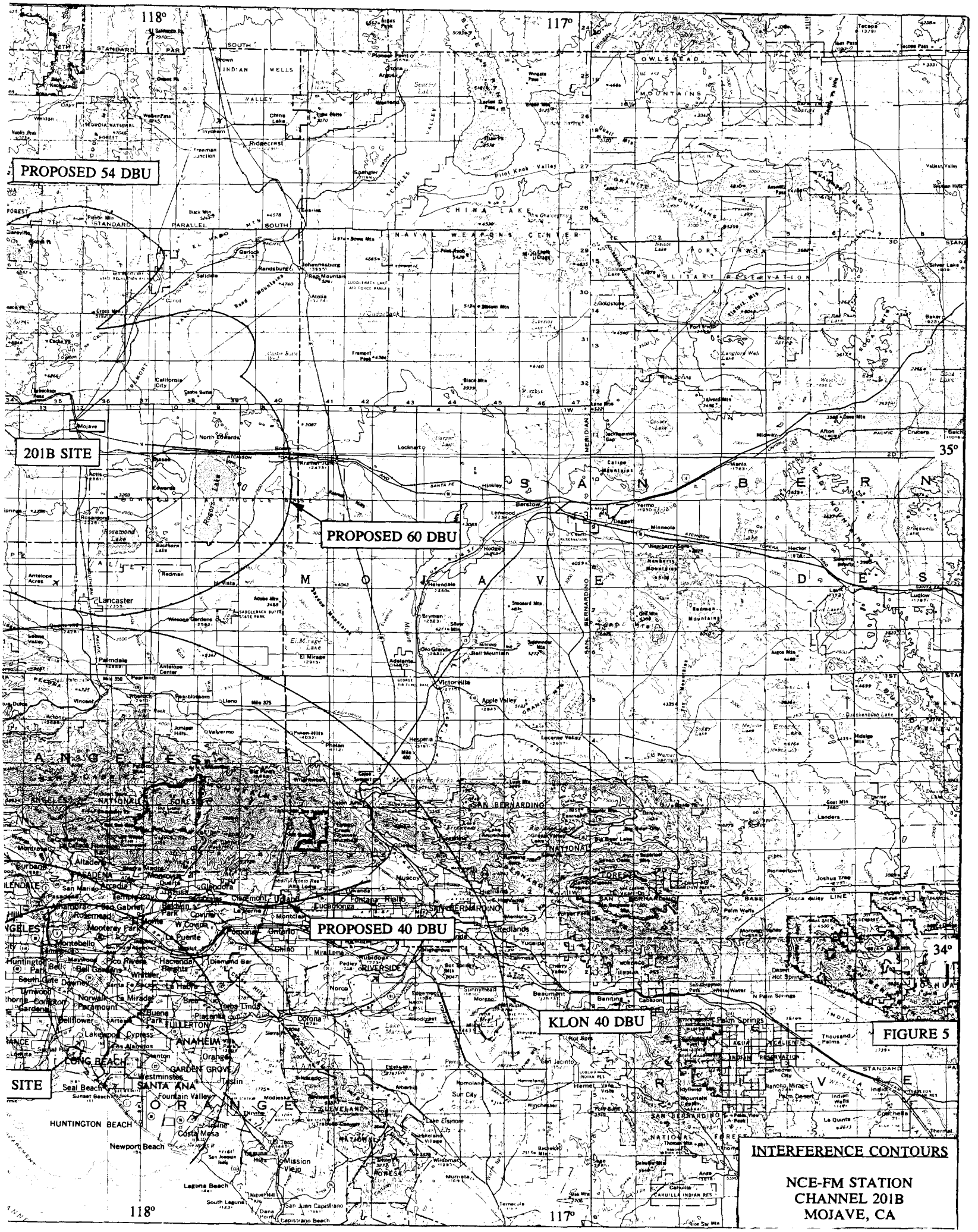

PROPOSED 54 DBU
201B SITE
PROPOSED 60 DBU
PROPOSED 40 DBU
KLON 40 DBU
SITE
118°
117°
35°
34°
INTERFERENCE CONTOURS
NCE-FM STATION
CHANNEL 201B
MOJAVE, CA

FIGURE 5

APPENDIX

ANTENNA MANUFACTURER'S DATA

MARCH 4, 1993

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM PROPOSED FOR THE NEW STATION LOCATED IN MOJAVE, CA

Electronics Research Inc. proposes to provide a custom fabricated directional antenna system that is specially designed to meet the F.C.C. requirements and the general needs of the new station.

The antenna is the E.R.I. DA1005-2B-HW configuration. The horizontal component of the dual polarized system consists of 4 half-wavelength spaced horizontally polarized bays using two driven horizontal dipoles and 2 horizontal parasitic elements per bay. The vertical component of the system consists of 2 full wavelength spaced vertical radiating bays using one driven vertical dipole and 4 vertical parasitic elements per bay. The vertical bays are interspursed between each pair of horizontal bays. A power divider will be used near the bottom of the antenna to feed the system. The antenna will be tested on a 8 5/8" o.d. pole, which is the structure the station plans to use to support the proposed array. All tests will be performed on a frequency of 88.1 megahertz which is the center of the FM broadcast channel assigned to the new station.

Pattern measurements will be made on a fifty-acre antenna pattern range which is owned and operated by Electronics Research, Inc. The tests will be performed under the direction of Thomas B. Silliman, president of Electronics Research, Inc. Mr. Silliman has both the Bachelor of Electrical Engineering and the Master of Electrical Engineering degrees from Cornell University, and is also a registered professional engineer in the states of Indiana, Maryland and Minnesota.

DESCRIPTION OF THE TEST PROCEDURE

The test antenna will consist of two one-halfwave spaced horizontal bays with a single interleaved vertical bay with the associated horizontal and vertical parasitic elements. The elements and brackets that will be used in this test are electrically equivalent to those that will be supplied with the proposed antenna. Sections of 3 1/8 inch o.d. rigid coaxial line will be used to feed the test antenna, and sections of 3 1/8 inch o.d. rigid outer conductor only will be attached above the test antenna. All feed lines will be over one half-wave in length. The lines will be properly grounded during all tests.

MARCH 4, 1993

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM
PROPOSED FOR THE NEW STATION
LOCATED IN MOJAVE, CA

(Continued)

The proof-of-performance will be accomplished using a supporting structure of identical dimensions and configuration as the proposed 8 5/8" o.d. pole, including all braces, ladders, conduits, coaxial lines and other appurtenances that are included in the actual aperture at which the proposed antenna will be installed. In order to fabricate an accurate model of the support structure E.R.I. will need accurate prints of it. These prints need to include the orientation of the support structure relative to true north, size and method of attachment of the legs and support braces in the antenna aperture. The location of guy attachments in the aperture must also be displayed. It is preferred and in most cases imperative, that guy wires occuring in the aperture of the proposed antenna be made of an insulating material. The location and method of attachment of all conduits, ladders, feed lines, lighting devices and other appurtenances which are located in the aperture of the proposed antenna must also be included in the prints.

The 8 5/8" o.d. pole will be erected vertically on a turntable mounted on a non-metalic building with the antenna centered vertically on the structure, making the center of radiation of the test approximately 25 feet above ground. The turntable is equipped with a motor drive and azimuth indicating mechanism, resolution of this azimuth measuring system is one-tenth of a degree.

The antenna under test will be operated in the transmitting mode and fed from a Wavetek Model 3000 signal generator. The frequency of the signal source will be set at 88.1Mhz and will be constantly monitored by an Anritsu Model ML521B measuring receiver.

A broad-band horizontal and vertical dipole system, located approximately 628 feet from the test antenna, and mounted at the same height above terrain as the center of the antenna under test, will be used to receive the emitted test signals. The signals received by the dipole system will be fed to test building by way of two buried Heliax cables to an Anritsu Model ML521B measuring receiver. This data will be interfaced to a Hewlett-Packard Model 9872C plotter by means of a Hewlett-Packard Model 86 computer system. Relative field strength will be plotted as a function of azimuth.

MARCH 4, 1993

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM
PROPOSED FOR THE NEW STATION
LOCATED IN MOJAVE, CA

(Continued)

The measurements will be performed by rotating the test antenna in a counter-clockwise direction and plotting the received signal on polar co-ordinated graph paper in a clockwise direction. Both horizontal and vertical components will be recorded separately.

CONCLUSIONS

The horizontal component of the dual polarized system consists of 4 half-wavelength spaced horizontally polarized bays using two driven horizontal dipoles and 2 horizontal parasitic elements per bay. The vertical component of the system consists of 2 full wavelength spaced vertical radiating bays using one driven vertical dipole and 4 vertical parasitic elements per bay. The vertical bays are interspursed between each pair of horizontal bays. A power divider will be used near the bottom of the antenna to feed the system. The power distribution and phase relationship will be fixed when the antenna is manufactured. Proper maintenance of the elements should be all that is required to maintain the pattern in adjustment.

The pattern shown on figure # 1 is based on measured data with a similar array orientated on a similar structure at a bearing of north 70 degrees east. Actual antenna orientation will be determined when the antenna is tested. Blue prints provided with the antenna will show the proper antenna orientation alignment. The antenna alignment procedure should be directed by a licensed surveyor as prescribed by the FCC.

Deicers are not supplied and are not available. The use of radomes is recommended if icing conditions will exist at the proposed site.

Figure #1 represents the maximum value of either the horizontal or vertical component at any azimuth. The attached horizontal plane relative field pattern shown on Figure #1 represents the maximum achievable radiation at any azimuth. The actual pattern when measured will not exceed that of Figure #1 at any azimuth. The composite horizontal and vertical maximum relative field envelope pattern obtained from the measured data will have an R.M.S. that is equal to, or no less than 85% of the R.M.S. of the

MARCH 4, 1993

DUAL POLARIZED DIRECTIONAL ANTENNA SYSTEM
PROPOSED FOR THE NEW STATION
LOCATED IN MOJAVE, CA

(Continued)

pattern shown on Figure #1. A calculated vertical plane relative field pattern for the vertically polarized component is shown on Figure #3 attached. A calculated vertical plane relative field pattern for the horizontally polarized component is shown on Figure #3A attached. The power in the maximum will reach 22 kilowatts (13.424 DBK).

The RMS of the vertically polarized horizontal plane component does not exceed the RMS of the horizontally polarized horizontal plane component.

The envelope pattern obtained from the maximum individual horizontal or vertical components will not exceed a rate of change of 2 DB per any ten degree change in azimuth as measured in the horizontal plane.

The approximate weight of the antenna minus the mounting structure is 663 lbs. The approximate windload of the antenna minus the mounting structure is 1212 lbs based on 50/33 PSF(112 MPH wind) with no ice build up. The clear vertical length of the structure required to support the antenna is 37 feet if the antenna is to be top mounted.

The directional antenna should not be mounted on the top of an antenna tower which includes a top-mounted platform larger than the cross-sectional area of the tower in the horizontal plane. No other obstructions other than those that are specified by the blue prints supplied with the antenna are to be mounted at the same tower level as the directional antenna. No obstruction of any type is to be within 75ft horizontally of the antenna system. The vertical distance to the nearest obstruction should be a minimum of 10ft from the directional antenna.

The calculated maximum power gain of the envelope pattern as shown on figure # 1 is 2.8481 (4.5456dB), which would require an input power of 7.7244 kilowatts. A calculated power gain of an antenna that has a horizontal and vertical R.M.S. that is equal to 85% of the R.M.S. of the envelope would have a power gain of 3.942 and would require an input power of 5.5809 kilowatts. The input flange to the antenna is 1 5/8 inch male.

Tom Schaff BE

ELECTRONICS RESEARCH, INC.
108 Market Street
Newburgh, In 47630

FOR FIGURE: 1 MARCH 4, 1993
HORIZONTAL PLANE RELATIVE FIELD & DBK LIST
FOR A NEW STATION 88.1MHz

AZIMUTH	H POL RELATIVE FIELD	H POL DBK	H POL POWER KW	V POL RELATIVE FIELD	V POL DBK	V POL POWER KW	AZIMUTH	H POL RELATIVE FIELD	H POL DBK	H POL POWER KW	V POL RELATIVE FIELD	V POL DBK	V POL POWER KW
0.0	.509	7.56	5.700	.509	7.56	5.700	180.0	.377	4.95	3.124	.377	4.95	3.124
5.0	.570	8.55	7.156	.570	8.55	7.156	185.0	.401	5.48	3.534	.401	5.48	3.534
10.0	.639	9.53	8.983	.639	9.53	8.983	190.0	.425	5.99	3.970	.425	5.99	3.970
15.0	.716	10.52	11.275	.716	10.52	11.275	195.0	.440	6.29	4.260	.440	6.29	4.260
20.0	.802	11.51	14.150	.802	11.51	14.150	200.0	.447	6.42	4.388	.447	6.42	4.388
25.0	.885	12.36	17.211	.885	12.36	17.211	205.0	.447	6.42	4.388	.447	6.42	4.388
30.0	.945	12.93	19.647	.945	12.93	19.647	210.0	.447	6.42	4.388	.447	6.42	4.388
35.0	.984	13.28	21.280	.984	13.28	21.280	215.0	.447	6.42	4.388	.447	6.42	4.388
40.0	1.000	13.42	22.000	1.000	13.42	22.000	220.0	.447	6.42	4.388	.447	6.42	4.388
45.0	1.000	13.42	22.000	1.000	13.42	22.000	225.0	.447	6.42	4.388	.447	6.42	4.388
50.0	1.000	13.42	22.000	1.000	13.42	22.000	230.0	.447	6.42	4.388	.447	6.42	4.388
55.0	1.000	13.42	22.000	1.000	13.42	22.000	235.0	.444	6.36	4.330	.444	6.36	4.330
60.0	1.000	13.42	22.000	1.000	13.42	22.000	240.0	.437	6.23	4.196	.437	6.23	4.196
65.0	1.000	13.42	22.000	1.000	13.42	22.000	245.0	.426	6.01	3.990	.426	6.01	3.990
70.0	1.000	13.42	22.000	1.000	13.42	22.000	250.0	.411	5.70	3.717	.411	5.70	3.717
75.0	1.000	13.42	22.000	1.000	13.42	22.000	255.0	.392	5.30	3.385	.392	5.30	3.385
80.0	1.000	13.42	22.000	1.000	13.42	22.000	260.0	.370	4.78	3.004	.370	4.78	3.004
85.0	1.000	13.42	22.000	1.000	13.42	22.000	265.0	.343	4.13	2.586	.343	4.13	2.586
90.0	1.000	13.42	22.000	1.000	13.42	22.000	270.0	.312	3.31	2.144	.312	3.31	2.144
95.0	1.000	13.42	22.000	1.000	13.42	22.000	275.0	.282	2.42	1.744	.282	2.42	1.744
100.0	1.000	13.42	22.000	1.000	13.42	22.000	280.0	.255	1.55	1.429	.255	1.55	1.429
105.0	.983	13.27	21.248	.983	13.27	21.248	285.0	.232	.74	1.186	.232	.74	1.186
110.0	.943	12.91	19.543	.943	12.91	19.543	290.0	.213	.01	1.002	.213	.01	1.002
115.0	.879	12.31	17.008	.879	12.31	17.008	295.0	.199	-.62	.867	.199	-.62	.867
120.0	.793	11.41	13.835	.793	11.41	13.835	300.0	.188	-1.11	.775	.188	-1.11	.775
125.0	.707	10.41	11.000	.707	10.41	11.000	305.0	.181	-1.43	.719	.181	-1.43	.719
130.0	.631	9.42	8.746	.631	9.42	8.746	310.0	.178	-1.58	.695	.178	-1.58	.695
135.0	.562	8.42	6.949	.562	8.42	6.949	315.0	.186	-1.17	.763	.186	-1.17	.763
140.0	.501	7.42	5.522	.501	7.42	5.522	320.0	.206	-.30	.934	.206	-.30	.934
145.0	.447	6.42	4.387	.447	6.42	4.387	325.0	.231	.68	1.169	.231	.68	1.169
150.0	.398	5.42	3.485	.398	5.42	3.485	330.0	.258	1.66	1.464	.258	1.66	1.464
155.0	.355	4.43	2.773	.355	4.43	2.773	335.0	.289	2.65	1.839	.289	2.65	1.839
160.0	.355	4.43	2.773	.355	4.43	2.773	340.0	.324	3.64	2.309	.324	3.64	2.309
165.0	.355	4.43	2.773	.355	4.43	2.773	345.0	.363	4.61	2.894	.363	4.61	2.894
170.0	.355	4.43	2.773	.355	4.43	2.773	350.0	.406	5.59	3.626	.406	5.59	3.626
175.0	.362	4.59	2.876	.362	4.59	2.876	355.0	.455	6.58	4.546	.455	6.58	4.546

CITY OF LICENSE: MOJAVE, CA
MOUNTING STRUCTURE: 8 5/8" O.D. POLE
ANTENNA TYPE: DA1005-2B-HW NUMBER OF BAYS: 2
HORIZONTAL MAXIMUM RELATIVE FIELD= 1.00000 AZIMUTH 40
HORIZONTAL MINIMUM RELATIVE FIELD= .17780 AZIMUTH 310
VERTICAL MAXIMUM RELATIVE FIELD= 1.00000 AZIMUTH 40
VERTICAL MINIMUM RELATIVE FIELD= .17780 AZIMUTH 310
HORIZONTAL R.M.S.=.62461 VERTICAL R.M.S.=.62461
MAXIMUM HORIZONTAL E.R.P.= 22.0000KW MAXIMUM VERTICAL E.R.P.= 22.0000KW
TOTAL POWER INPUT= 7.7244KW
MAXIMUM HORIZONTAL GAIN OF COMPLETE ARRAY= 2.85 (4.546dB)
MAXIMUM VERTICAL GAIN OF COMPLETE ARRAY= 2.85 (4.546dB)
ANTENNA ORIENTATION: NORTH 70 DEGREES EAST
PATTERN REFERENCE #MOJA1E1762

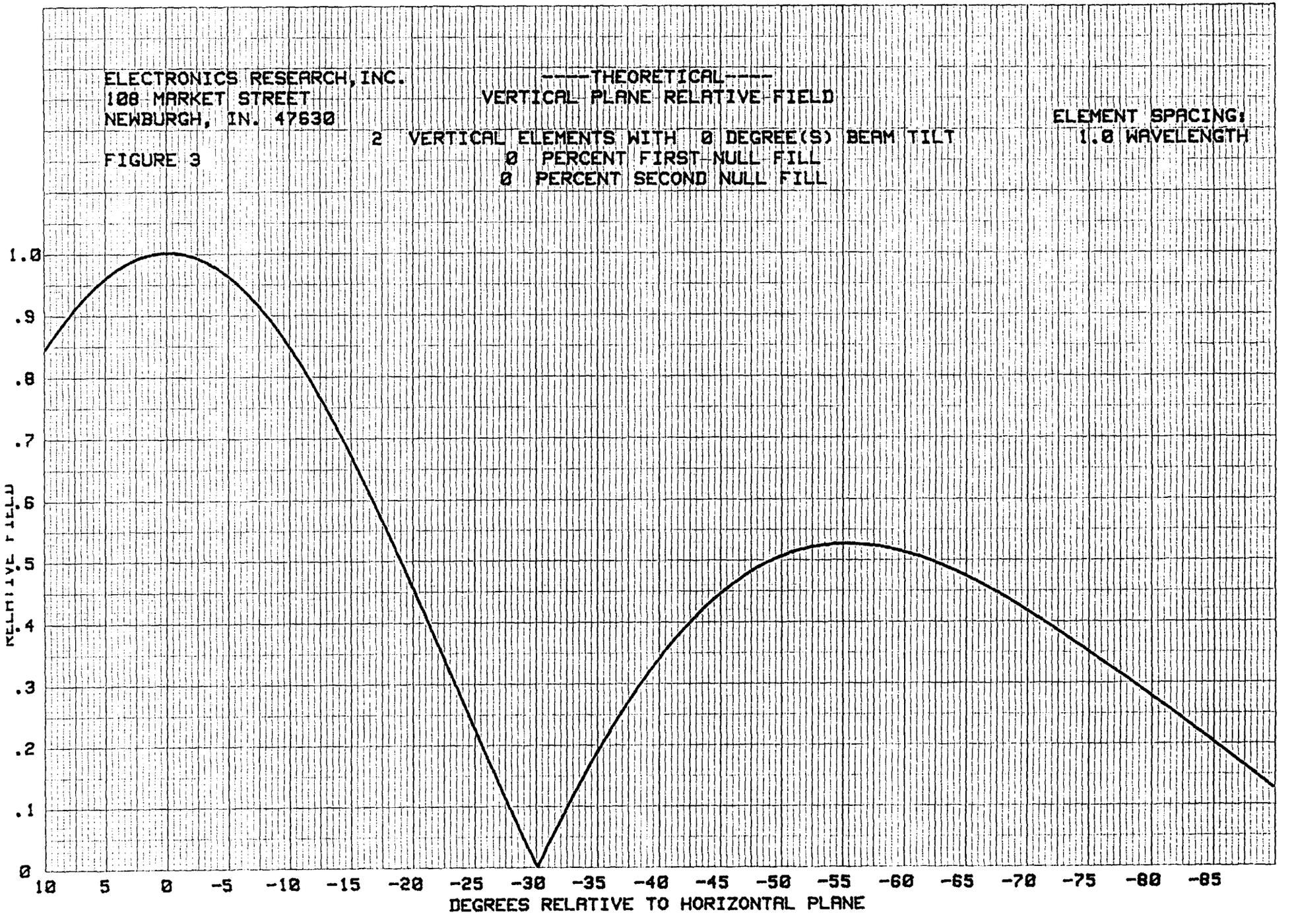
ELECTRONICS RESEARCH, INC.
108 MARKET STREET
NEWBURGH, IN. 47630

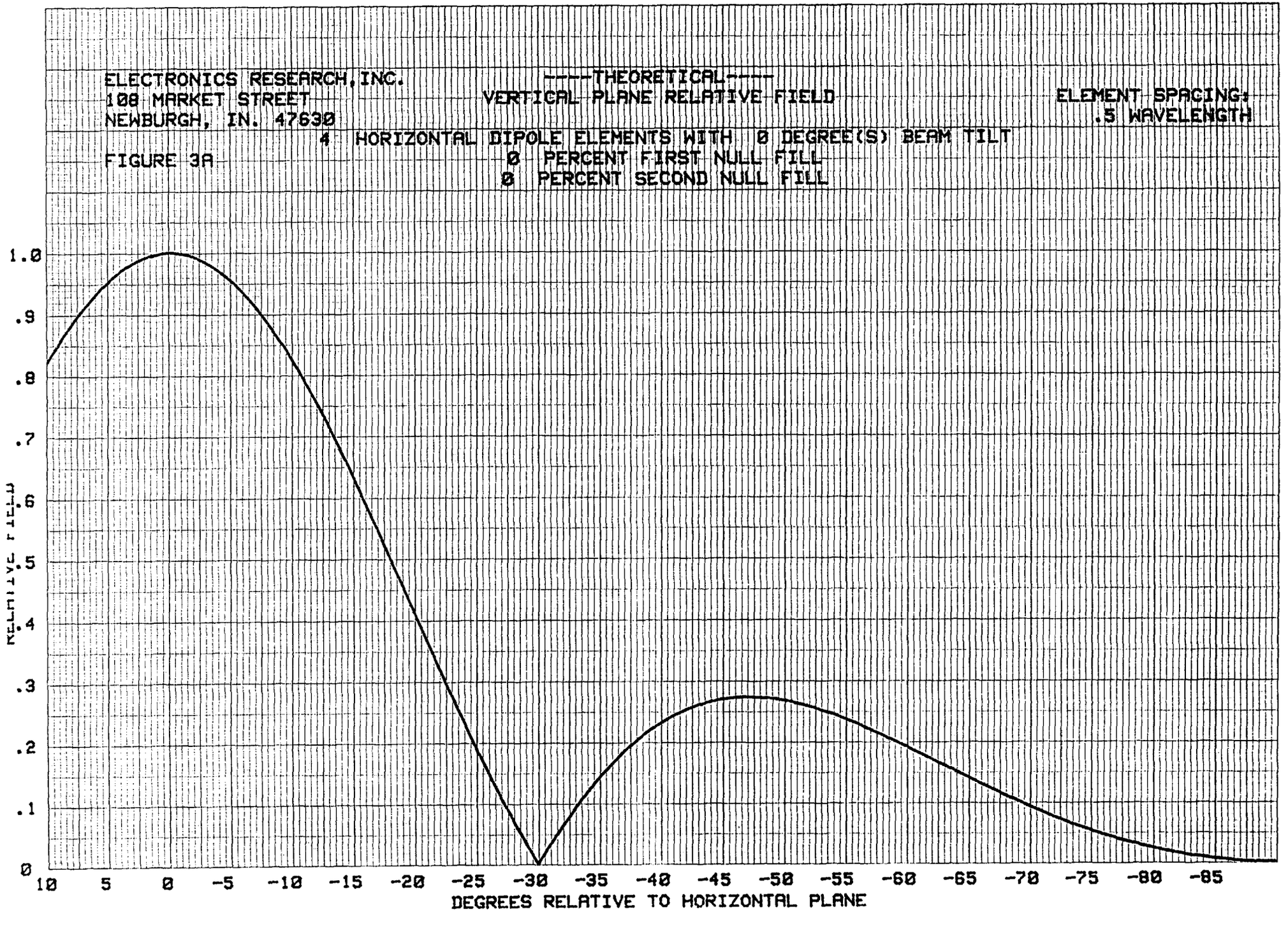
FIGURE 3

-----THEORETICAL-----
VERTICAL PLANE RELATIVE FIELD

2 VERTICAL ELEMENTS WITH 0 DEGREE(S) BEAM TILT
0 PERCENT FIRST-NULL FILL
0 PERCENT SECOND NULL FILL

ELEMENT SPACING:
1.0 WAVELENGTH





ELECTRONICS RESEARCH, INC.

108 Market St. • Newburgh, IN 47630 • (812) 853-3318 • FAX (812) 858-5706

DA-1005 Directional Series FM Antenna

The ERI, DA-1005 series FM antenna is pole or Lambda mounted and designed to radiate power in a highly defined directionalized pattern. This dual polarized antenna is ideal for FM stations operating under a FCC construction permit which requires a directional antenna pursuant to Docket MM87-121.

The DA-1005 antenna is comprised of vertical and horizontal dipole elements. Each element is constructed of 3-1/8" diameter, brass tubing with silver soldered connections. This combination of materials provides excellent strength, flexibility, and durability. The large diameter of each element affords superior structural integrity and contributes to the wide VSWR bandwidth of the antenna.

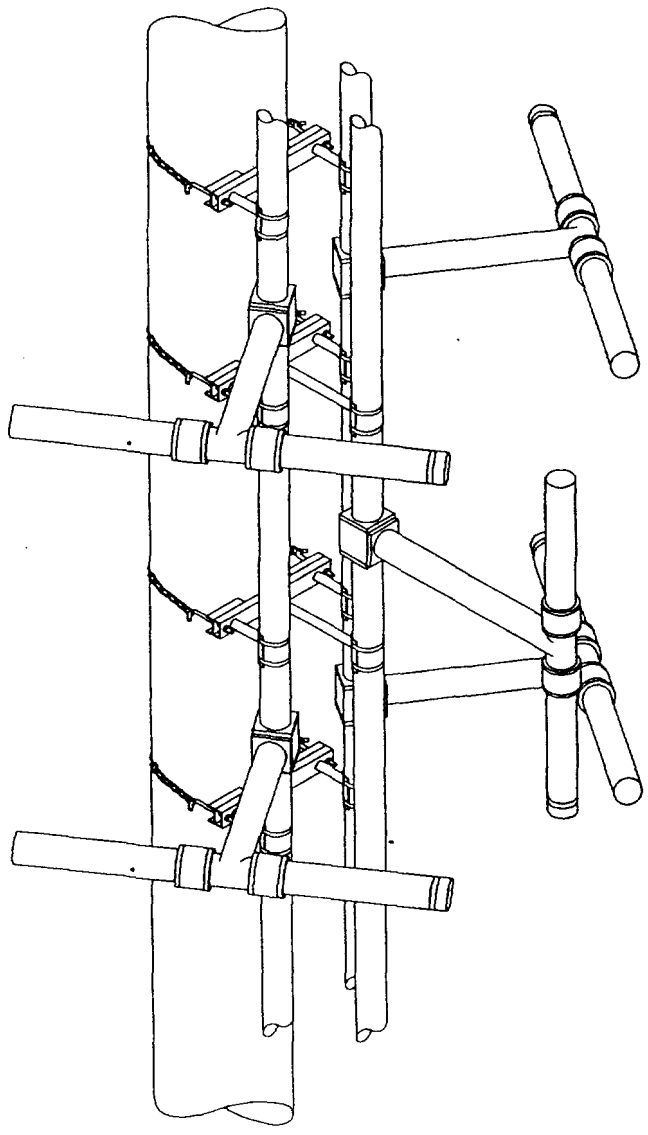
The DA-1005's design vastly reduces the need of protection from radial ice accumulation. Radomes are available in extreme icing conditions.

ERI's optional DA Pole support is designed and fabricated to enhance the operational and structural characteristics of the DA-1005 antenna.

The DA-1005 antenna system, comprised of the DA-1005 antenna and ERI's DA Pole support structure are developed on our fifty acre antenna pattern range. Pattern documentation is provided to meet pertinent requirements of the stations construction permit and FCC rules concerning directional antennas.

Each DA-1005 antenna system is customized to comply with the purchaser's specific requirements. Crucial information required to determine the DA-1005's broadcast characteristics are: maximum authorized ERP, true azimuth orientation, radiated power limitations including true orientation, transmission line type and length, and available transmitter output power. Structural design information is also required if the DA-1005 antenna is placed on another manufacturer's pole.

To increase peak power ratings and reduce maintenance demands the DA-1005 antenna system is designed to be pressurized with a constant positive pressure of 3-5 psi dry air or nitrogen.



TYPE	INPUT POWER RATING	INPUT[1] FLANGE	TYPE	INPUT POWER RATING	INPUT[1] FLANGE
DA-1005-1A	12kW	1-5/8"	DA-1005-5A	12kW	1-5/8"
DA-1005-1B	40kW	3-1/8"	DA-1005-5B	40kW	3-1/8"
DA-1005-2A	12kW	1-5/8"	DA-1005-6A	12kW	1-5/8"
DA-1005-2B	40kW	3-1/8"	DA-1005-6B	40kW	3-1/8"
DA-1005-3A	12kW	1-5/8"	DA-1005-7A	12kW	1-5/8"
DA-1005-3B	40kW	3-1/8"	DA-1005-7B	40kW	3-1/8"
DA-1005-4A	12kW	1-5/8"	DA-1005-8A	12kW	1-5/8"
DA-1005-4B	40kW	3-1/8"	DA-1005-8B	40kW	3-1/8"

1. All 1-5/8" antennas are male input and all 3-1/8" antennas are female input.

If you demand Excellence,
make ERI your SINGLE SOURCE for Antenna and Tower Products!

DA-1005 DIRECTIONAL SERIES FM ANTENNA

FULL WAVE SERIES

NO. OF BAYS	ANTENNA WINDLOAD[1] (measured in pounds) ANTENNA ONLY	WITH 1/2" RADIAL ICE	WITH RADOME	W/RADOME & 1/2" RADIAL ICE	ANTENNA C_AA_A[2] (measured in square feet) ANTENNA ONLY	WITH 1/2" RAIDAL ICE	WITH RADOME	W/RADOME & 1/2" RADIAL ICE	WEIGHT OF ANTENNA (measured in pounds) ANTENNA ONLY	WITH 1/2" RADIAL ICE	WITH RADOME	W/RADOME & 1/2" RADIAL ICE
1	687	916	1044	1309	24.9	33.2	37.9	47.5	280	486	295	676
2	1122	1492	1836	2278	40.6	54.0	66.7	82.6	479	811	509	1191
3	1557	2068	2628	3247	56.3	74.8	95.2	117.6	678	1136	723	1706
4	1991	2644	3419	4216	72.0	95.6	123.9	152.7	877	1461	937	2221
5	2426	3220	4211	5185	87.7	116.4	152.6	187.8	1076	1786	1151	2736
6	2861	3796	5003	6154	103.4	137.2	181.3	222.9	1275	2111	1365	3251
7	3295	4372	5794	7123	119.1	158.0	210.0	258.0	1474	2436	1579	3766
8	3730	4948	6586	8092	134.8	178.8	238.6	293.1	1673	2761	1793	4281

1. Based on 50/33 psf, EIA/RS-222-C Standard. 2. C_AA_A per ANSI/EIA-222-D Standard. 3. Wind and weight data does not include parasites or their supporting brackets.

HALF WAVE SERIES

NO. OF BAYS	ANTENNA WINDLOAD[1] (measured in pounds) ANTENNA ONLY	WITH 1/2" RADIAL ICE	WITH RADOME	W/RADOME & 1/2" RADIAL ICE	ANTENNA C_AA_A[2] (measured in square feet) ANTENNA ONLY	WITH 1/2" RAIDAL ICE	WITH RADOME	W/RADOME & 1/2" RADIAL ICE	WEIGHT OF ANTENNA (measured in pounds) ANTENNA ONLY	WITH 1/2" RADIAL ICE	WITH RADOME	W/RADOME & 1/2" RADIAL ICE
1	750	1000	1317	1625	27.2	36.2	47.9	58.9	470	705	495	1020
2	1265	1685	2399	2935	45.9	61.0	87.1	106.3	800	1195	850	1825
3	1780	2370	3481	4245	64.6	85.8	126.4	153.8	1130	1690	1205	2635
4	2295	3055	4563	5555	83.3	110.6	165.7	201.2	1630	2350	1730	3610
5	2810	3740	5645	6865	102.0	135.4	205.0	248.7	1795	2675	1920	4250
6	3325	4425	6727	8175	120.7	160.2	244.3	296.1	2125	3170	2275	5060
7	3840	5110	7809	9485	139.4	185.0	283.5	343.6	2460	3660	2635	5865
8	4355	5795	8891	10795	158.1	209.8	322.8	391.0	2790	4155	2990	6675

1. Based on 50/33 psf, EIA/RS-222-C Standard. 2. C_AA_A per ANSI/EIA-222-D Standard. 3. Wind and weight data does not include parasites or their supporting brackets.

SUPPORTING POLE

NO. OF CELLS	POLE LENGTH (ft)	POLE O.D. (in)	HEIGHT OF ELECTRICAL CENTER (ft)	WINDLOAD[1] POLE ONLY	WITH 1/2" RADIAL ICE	$CfAe^2$ POLE ONLY	WITH 1/2" RADIAL ICE	FULL WAVE SERIES WEIGHT POLE ONLY	WITH 1/2" RADIAL ICE	HALF WAVE SERIES WEIGHT POLE ONLY	WITH 1/2" RADIAL ICE
1	25	8-5/8"	22.0	738	916	26.82	33.30	1035	1214	1035	1214
2	35	8-5/8"	26.4	1029	1278	37.42	46.46	2635	2904	2635	2904
3	45	10-3/4"	31.0	1585	1905	57.64	69.26	3175	3592	3475	3892
4	55	12-3/4"	35.3	2237	2626	81.34	95.50	4375	4960	4837	5422
5	65	14	39.7	2865	3325	104.18	120.91	6259	7009	6435	7185
6	75	16	44.2	3718	4248	135.19	154.47	7775	8709	8520	9454
7	85	18	48.6	4681	5282	170.22	192.07	10405	11576	10405	11576
8	95	18	53.0	5229	5900	190.14	214.54	12295	13585	13565	14855

1. Based on 50/33 psf, EIA/RS-222-C Standard. 2. Pole shape factor (Cf) of 1.2 used for wind force calculations. Data for full wave and half wave is consistant except for weight of pole. (as noted)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 5th day of July, 1994, I caused a true copy of the foregoing Petition for Leave to Amend to be sent via hand delivery, to the following:

Gary Schonman, Esq.
Hearing Branch
Mass Media Bureau
Federal Communications Commission
Room 7212
2025 M Street, N.W.
Washington, D.C. 20554

and via first class mail, postage prepaid, to:

Gary Curtis, Executive Director
Living Way Ministries
14820 Sherman Way
Van Nuys, California 91405

Dawn Brodus-Yougha

Dawn Brodus-Yougha